

PATENT COOPERATION TREATY

**Sender: THE INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY**

PCT

NOTIFICATION OF TRANSMITTAL
OF INTERNATIONAL PRELIMINARY
REPORT
(Rule 71.1 PCT)

To: Hamann, Arndt SAURER GmbH & Co. KG Landgrafenstrasse 45 41069 Mönchengladbach GERMANY	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Date of mailing (Day/month/year)</td> <td style="width: 40%;">02.01.2006</td> </tr> </table>	Date of mailing (Day/month/year)	02.01.2006
Date of mailing (Day/month/year)	02.01.2006		
Applicant's or agent's file reference WS 2242 PCT	IMPORTANT NOTIFICATION		
International application No. PCT/EP2004/011451	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> International filing date (Day/Month/Year) 13.10.2004 </td> <td style="width: 50%;"> Priority date (Day/Month/Year) 10.11.2003 </td> </tr> </table>	International filing date (Day/Month/Year) 13.10.2004	Priority date (Day/Month/Year) 10.11.2003
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Applicant SAURER GMBH & CO. KG			

1. The Applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the International Preliminary Report on patentability and its annexes, if any, established on the International Application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for Communication to all the elected Offices.
3. Where required by any of the elected offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those offices.
4. **REMINDER**

The Applicants must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the information sent by the International Bureau with form PCT/1B/301).

Where a translation of the International Application must be furnished to an elected Office, that translation must contain a translation of any annexes to the International Preliminary Report on patentability. It is the Applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices see Volume II of the PCT Applicant's guide.

The Applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purpose of International Preliminary Examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure of the invention and clarity and support for the claims.

Name and mailing address of the International Examining Authority: European Patent Office – P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk – Netherlands Tel. +31 70 340 -2040, Tx: 31 651 epo nl Fax: +31 70 340 – 3016	Authorised officer Blouw, J Tel. +31 70 340-4118
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

Applicant's or agent's file reference WS 2242 PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/011451	International filing date (Day/Month/Year) 13.10.2004	Priority date (Day/Month/Year) 10.11.2003
International Patent Classification (IPC) or national classification and IPC B65H63/06		
Applicant SAURER GMBH & CO. KG		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority according to Article 35 and transmitted to the Applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising a. X A total of 4 sheets (<i>sent to the Applicant and to the International Bureau</i>), as follows: X <input type="checkbox"/> Sheets of the description, claims and/or drawing which have been amended and are the basis of this report and/or sheets containing rectifications authorised by this authority (see Rule 70.16 and Section 607 of the Administrative instructions). <input type="checkbox"/> Sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the International Application as filed, as indicated in Item 4 of Box No. 1 and the supplemental box. b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s), containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the supplemental box relating to the sequence listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: X Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinions with regard to novelty, inventive step and any industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention X Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the request for preliminary examination 03.06.2005	Date of completion of this report 02.01.2006
Name and mailing address of the International Examining Authority: European Patent Office – P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk – Netherlands Tel. +31 70 340 -2040, Tx: 31 651 epo nl Fax: +31 70 340 – 3016	Authorised officer Lemmen, R Tel. +31 70 340-4112 EPO stamp

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

AP20 Rec'd - UNPTD 03 MAY 2006

International Application No. PCT/EP2004/011451

Box No. 1 Basis of the report

1. With regard to the **language**, this report is based on the International Application in the language in which it was filed, if nothing different is stated under this point.

- ☐ The report is based on a translation from the original language into the following language, which is the language of the translation, which has been filed for the following purpose:
- ☐ international search (according to Rules 12.3 and 23.1b)
 - ☐ publication of the international application (according to Rule 12.4)
 - ☐ international preliminary examination (according to Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, the report is based on *(replacement sheets which have been furnished to the receiving office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, pages

1-8 in the originally filed version

Claims, No.

1-10 in the originally filed version

Drawings, sheets

1/3, 3/3 in the originally filed version

☐ a sequence listing and/or any related tables – see supplemental box relating to sequence listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ Description: page
 - ☐ Claims: No.
 - ☐ Drawings: Sheet/Figs.
 - ☐ Sequence listing (*specify*):
 - ☐ any tables relating to the sequence protocol (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered in the opinion of the authority to go beyond the disclosure as originally filed, as indicated in the supplemental box (Rule 70.2 c)).
- ☐ Description: page
- ☐ Claims: No.
- ☐ Drawings: Sheet/Figs.
- ☐ Sequence listing (*specify*):
- ☐ any tables relating to the sequence listing (*specify*):

* If Item 4 applies, some or all of the sheets may be marked "superceded".

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.
PCT/EP2004/011451

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; documents and explanations supporting such statement

- | | | |
|----|-------------------------------|--------------------------------|
| 1. | Statement | |
| | Novelty (N) | Yes: Claims 1-10
No: Claims |
| | Inventive step (IS) | Yes: Claims 1-10
No: Claims |
| | Industrial applicability (IA) | Yes: Claims 1-10
No: Claims |

2. Documents and explanations (Rule 70.7):

see supplementary sheet

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(SUPPLEMENTARY SHEET)

International Application No. PCT/EP2004/011451

Item V**Reasoned statements with regard to novelty, inventive step and industrial applicability;
documents and explanations supporting such statement****1. Reference is made to the following documents:**

- D1: EP-A-1 295 835 (RIETER INGOLSTADT SPINNEREI) 26 March 2003 (2003-03-26)
D2: EP-A-0 877 108 (LUWA AG ZELLWEGER) 11 November 1998 (1998-11-11)
D3: WO 00/73189 A (LUWA AG ZELLWEGER; HOELLER ROBERT (CH)) 7 December 2000 (2000-12-07)

2. The document D1 is regarded as the closest prior art with respect to the subject of claim 1. It discloses (paragraph [0011]) a:

Yarn clearer for cleaning out defects from a yarn, in the measuring head of which at least one yarn parameter is measured, wherein for the yarn parameter, cleaning limits are determined, the exceeding of which signals the presence of a defect in the yarn, for which purpose the measured values of the yarn parameter are compared with the cleaning limits and wherein intolerable defects are cut out from the yarn (**cf. preamble of claim 1**).

Yarn clearers according to the preamble of claim 1 are also known, for example from the **documents D2 and D3**.

The subject of claim 1 therefore differs from the known yarn clearers in that

- the yarn clearer is set up for cleaning out effect yarn (1), wherein the effect yarn (1) is formed from an alternating arrangement side by side of webs (14) and of effects (13) consisting of predetermined thickenings,
- at least one value of the yarn parameter for webs (14) and at least one value of the yarn parameter for effects (13) of the effect yarn (1) is predetermined in that a predetermined tolerance range is allocated to the value of the yarn parameter for the effect, with an upper cleaning limit (RG_{EO}), which lies above the value of the yarn parameter for effects (13), as the upper limit value, and with a lower cleaning limit (RG_{EU}), which lies below the value of the yarn parameter for effects (13), as the lower limit value, in that a predetermined tolerance range is allocated to the value of the yarn parameter for the web, with an upper cleaning limit (RG_{STO}), which lies above the value of the yarn parameter for webs (14), as the upper limit value and with a lower cleaning limit (RG_{STU}), which lies below the value of the yarn parameter for webs (14), as the lower limit value,

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(SUPPLEMENTARY SHEET)**

International Application No. PCT/EP2004/0114510429

- yarn parameter values detected from a web region are compared with the limit values allocated to the web parameter and in that yarn parameter values detected from an effect region are compared with the limit values allocated to the effect parameter.

The subject of claim 1 is therefore novel (Article 33(2) PCT).

The object to be achieved by the present invention can therefore be seen in providing a yarn clearer, the use range of which is enlarged.

The solution proposed in claim 1 of the present application for this object is therefore based on an inventive step (Article 33(3) PCT) for the following reasons:

Although the document D1 in Fig. 5 discloses two tolerance regions each with an upper and a lower cleaning limit, in this device, the detected yarn parameter values are not compared, as a function of the measuring region, either with the one or the other tolerance range. This document thus contains no indication regarding an embodiment of the yarn clearer for effect yarn with a different evaluation of measured values, which is dependent on whether the respective value originates from a web region or from an effect region.

A different evaluation of this type of measured values is not disclosed or made obvious in documents D2 and D3, either.

3. Claims 2 to 10 are dependent on claim 1 and therefore also meet the requirements of the PCT with regard to novelty and an inventive step.

DS And
Date: 01.12.05
WS2242PCT

Claims

1. Yarn clearer for cleaning out defects from a yarn, in the measuring head of which at least one yarn parameter is measured, wherein for the yarn parameter, cleaning limits are determined, the exceeding of which signals the presence of a defect in the yarn, for which purpose the measured values of the yarn parameter are compared with the cleaning limits and wherein intolerable defects are cut out from the yarn, characterised in that the yarn clearer is set up to clean out effect yarn (1), wherein the effect yarn (1) is formed from an alternating arrangement side by side of webs (14) and of effects (13) consisting of predetermined thickenings, in that at least one value of the yarn parameter for webs (14) and at least one value of the yarn parameter for effects (13) of the effect yarn (1) is predetermined, in that a predetermined tolerance range is allocated to the value of the yarn parameter for the effect, with an upper cleaning limit (RG_{EO}), which lies above the value of the yarn parameter for effects (13), as the upper limit value, and with a lower cleaning limit (RG_{EU}) which lies below the value of the yarn parameter for effects (13), as the lower limit value, in that a predetermined tolerance range is allocated to the value of the yarn parameter for the web, with an upper cleaning limit (RG_{STO}), which lies above the value of the yarn parameter for webs (14), as the upper limit value and with a lower cleaning limit (RG_{STU}), which lies below the value of the yarn parameter for webs (14), as the lower limit value,

in that yarn parameter values detected from a web region are compared with the limit values allocated to the web parameter and in that yarn parameter values detected from an effect region are compared with the limit values allocated to the effect parameter.

2. Yarn clearer according to claim 1, characterised in that the yarn clearer (5) is set up to implement yarn clearer functions, known *per se*, in such a way that at least one of the following defects is detectable:

short thick location, long thick location,
short thin location, long thin location,
periodically recurring defects.

3. Yarn clearer according to either of claims 1 or 2, characterised in that the yarn clearer (5) is set up in such a way that, alternatively, either only defects in the web regions are cleaned out or only defects in the effect regions are cleaned out.

4. Yarn clearer according to either of claims 1 or 2, characterised in that the yarn parameter is the diameter of the effect yarn (1), in that the cleaning limits of the yarn clearer (5) are matched to at least one diameter value for the effect thickness and to at least one diameter value for the web thickness.

5. Yarn clearer according to claim 4, characterised in that the yarn clearer (5) is set up in such a way that it determines, over a predetermined yarn length, the average diameter values of the webs (14) and the average diameter values of the effects

(13), and in that the determination of the average diameter values takes place at least at the beginning of the measurement.

6. Yarn clearer according to either of claims 4 or 5, characterised in that the defect lengths are included in the determination of the cleaning limits.

7. Yarn clearer according to any one of claims 4 to 6, characterised in that, to determine the average value of the web diameter D_{ST} , it initially forms an arithmetic average value of the yarn diameter from a predetermined length of effect yarn (1) as the reference diameter, subtracts the reference diameter from the individual values of the yarn diameter and forms the average value of the web diameter D_{ST} as the arithmetic average value of all the negative differential values, which have been measured adjacent to other negative differential values.

8. Yarn clearer according to any one of claims 4 to 7, characterised in that the yarn clearer (5) is set up such that it determines the effect region in that the beginning of the effect (13) is defined by fulfilling a first criterion and in that the end of the effect is defined by fulfilling a second criterion, between the beginning and the end of the effect (13), a specifiable number of largest diameters is determined, an arithmetic average value is formed from the diameters determined, which is specified as the diameter of the effect (13), and the region of the effect yarn (1) outside the effect (13) is defined as the web region.

9. Yarn clearer according to claim 8, characterised in that the diameter D_E of the effect (13) is formed as the average

diameter value of the four largest diameters between the beginning and end of the effect (13).

10. Yarn clearer according to either of claims 8 or 9, characterised in that, considered as the first criterion is the exceeding of a limit diameter D_{GR} , which is greater by a defined amount than the average value of the web diameter D_{ST} and in that the exceeding lasts over a predetermined yarn length L_{V1} and in that, considered as the second criterion is the falling below of the limit diameter D_{GR} and the fact that the falling below lasts over the predetermined yarn length L_{V2} .